

CONSUMER TRANSISTORS & ICs

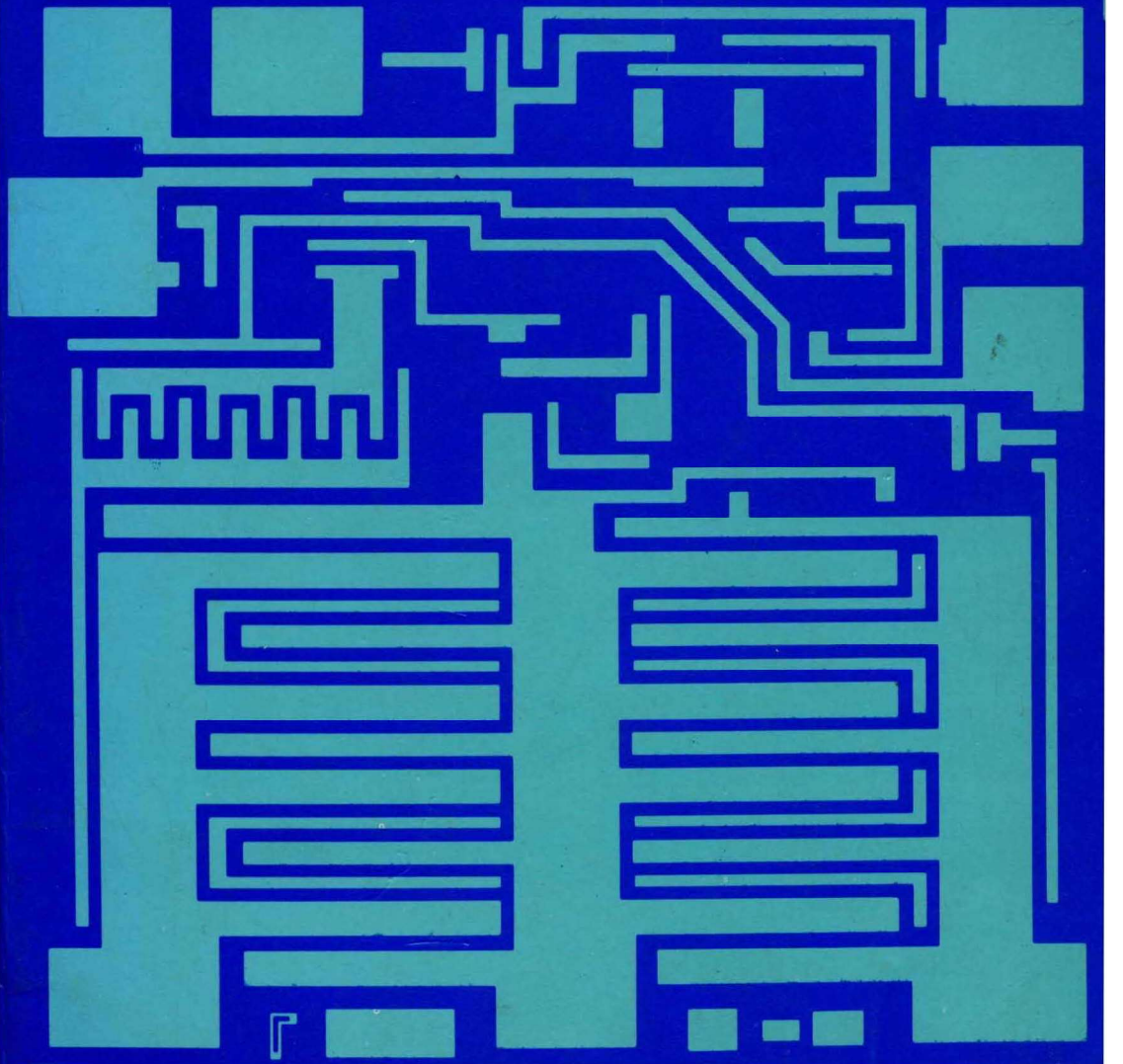
DATABOOK



ATES

1975/76

CONSUMER TRANSISTORS & ICs



GERMANIUM MESA PNP

AF 109R

VHF PREAMPLIFIER

The AF 109R is a germanium mesa PNP transistor in a Jedec TO-72 metal case. It is designed for use in AGC prestages up to 260 MHz.

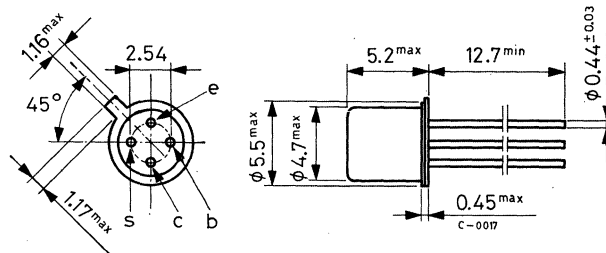
ABSOLUTE MAXIMUM RATINGS

V_{CBO}	Collector-base voltage ($I_E = 0$)	-20 V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	-15 V
V_{EBO}	Emitter-base voltage ($I_C = 0$)	-0.3 V
I_C	Collector current	-10 mA
P_{tot}	Total power dissipation at $T_{amb} \leq 45^\circ\text{C}$	60 mW
	at $T_{case} \leq 66^\circ\text{C}$	60 mW
T_{stg}	Storage temperature	-30 to 75 °C
T_j	Junction temperature	90 °C

MECHANICAL DATA

Dimensions in mm

Shield lead connected to case



TO-72

AF 109R

THERMAL DATA

$R_{th\ j-case}$	Thermal resistance junction-case	max	400	°C/W
$R_{th\ j-amb}$	Thermal resistance junction-ambient	max	750	°C/W

ELECTRICAL CHARACTERISTICS ($T_{case} = 25\text{ °C}$ unless otherwise specified)

Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector cutoff current ($I_E = 0$)		-0.5	-8	μA
I_{CEO}	Collector cutoff current ($I_B = 0$)			-500	μA
I_{EBO}	Emitter cutoff current ($I_C = 0$)			-100	μA
V_{BE}	Base-emitter voltage	$I_C = -1.5\text{ mA}$ $I_C = -2\text{ mA}$	$V_{CE} = -12\text{ V}$ $V_{CE} = -6\text{ V}$	-320 -380 -430	mV mV
h_{FE}	DC current gain	$I_C = -1.5\text{ mA}$ $I_C = -2\text{ mA}$	$V_{CE} = -12\text{ V}$ $V_{CE} = -6\text{ V}$	20 50 55	— —
$-C_{re}$	Reverse capacitance	$I_C = -1\text{ mA}$ $f = 450\text{ kHz}$	$V_{CE} = -12\text{ V}$	0.25	pF
NF	Noise figure	$I_C = -2\text{ mA}$ $R_g = 60\ \Omega$	$V_{CE} = -12\text{ V}$ $f = 200\text{ MHz}$	4.8	dB
G_{db}	Power gain	$I_C = -2\text{ mA}$ $R_L = 920\ \Omega$ $f = 200\text{ MHz}$	$V_{CE} = -12\text{ V}$ $R_{EE} = 1\text{ k}\Omega$	13 16.5	dB